

Safety relays - PSR-MC20-3NO-1DO-24DC-SP - 2700467

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Safety relay for emergency stop/safety doors up to SILCL 1, Cat. 1, PL c, depending on the application up to SILCL 3, Cat. 4, PL e, 1-channel operation, automatic/manual start, 3 enabling current paths, $U_s = 24 \text{ V DC}$, plug-in spring-cage terminal block

The figure shows a version with a screw connection

Product Features

- Up to Cat. 1/PL c according to ISO 13849-1, SILCL 1 according to IEC 62061
- Depending on the application, up to Cat. 4/PL e according to ISO 13849-1, SILCL 3 according to IEC 62061
- Low housing width of just 12.5 mm
- Single-channel control
- 3 enabling current paths, 1 digital signal output
- Manually monitored and automatic activation in a single device



Key Commercial Data

Packing unit	1 pc
Weight per Piece (excluding packing)	180.0 g
Custom tariff number	85371099
Country of origin	Germany

Technical data

Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
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Dimensions

Width	12.5 mm
Height	116.6 mm

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Technical data

Dimensions

Depth	114.5 mm
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Ambient conditions

Ambient temperature (operation)	-40 °C ... 55 °C (observe derating)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Max. permissible relative humidity (operation)	75 % (on average, 85% infrequently, non-condensing)
Max. permissible humidity (storage/transport)	75 % (on average, 85% infrequently, non-condensing)
Shock	15g
Vibration (operation)	10 Hz ... 150 Hz, 2g
Maximum altitude	max. 2000 m (Above sea level)

Input data

Rated control circuit supply voltage U_s	24 V DC -15 % / +10 %
Power consumption at U_s	typ. 1.92 W
Rated control supply current I_s	typ. 80 mA
Typical inrush current	5 A ($\Delta t = 200 \mu s$ at U_s)
Current consumption	< 5 mA (with U_s/I_x to S12)
	< 10 mA (with U_s/I_x to S34)
	> -5 mA (with U_s/I_x to S34)
Voltage at input/start and feedback circuit	24 V DC -15 % / +10 %
Typical response time	< 175 ms (automatic start)
	< 175 ms (manual, monitored start)
Typical pick-up time	< 250 ms (when controlled via A1)
Typical release time	< 20 ms (when controlled via A1 or S12)
Recovery time	< 500 ms
Status display	3 x green LED
Maximum switching frequency	0.5 Hz
Max. permissible overall conductor resistance	150 Ω
Filter time	1 ms (at A1 in the event of voltage dips at U_s)
	max. 1.5 ms (at S12; test pulse width)
	min. 7.5 ms (at S12; test pulse rate)
	Test pulse rate = 5 x Test pulse width

Output data

Contact type	3 enabling current paths
Contact material	AgSnO ₂
Minimum switching voltage	12 V AC/DC
Maximum switching voltage	250 V AC/DC (Observe the load curve)

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Output data

Limiting continuous current	6 A (observe derating)
Inrush current, minimum	3 mA
Maximum inrush current	6 A
Sq. Total current	48 A ² (observe derating)
Switching capacity	min. 60 mW
Output fuse	6 A gL/gG (N/O contact)
	4 A gL/gG (for low-demand applications)

Alarm outputs

Number of outputs	1 (digital, PNP)
Voltage	22 V DC (U _s - 2 V)
Current	max. 100 mA
Maximum inrush current	500 mA (Δt = 1 ms at U _s)
Short-circuit protection	no

General

Relay type	Electromechanical relay with forcibly guided contacts in accordance with IEC/EN 61810-3 (EN 50205)
Mechanical service life	10 x 10 ⁶ cycles
Net weight	173.4 g
Mounting type	DIN rail mounting
Assembly instructions	See derating curve
Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Mounting position	vertical or horizontal
Housing material	PBT

Connection data

Connection method	Spring-cage connection
pluggable	Yes
Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	1.5 mm ²
Conductor cross section flexible min.	0.2 mm ²
Conductor cross section flexible max.	1.5 mm ²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	16
Stripping length	8 mm

Safety-related characteristic data

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Technical data

Safety-related characteristic data

Stop category	0
Designation	IEC 61508 - High demand
Safety Integrity Level (SIL)	1 (up to SIL 3 depending on the application)
Designation	IEC 61508 - Low demand
Safety Integrity Level (SIL)	1 (up to SIL 3 depending on the application)
Designation	EN ISO 13849
Performance level (PL)	c (up to PL e depending on the application)
Category	1 (up to Cat. 4 depending on the application)
Designation	EN 62061
Safety Integrity Level Claim Limit (SIL CL)	1 (up to SILCL 3 depending on the application)

Standards and Regulations

Shock	15g
Designation	Air clearances and creepage distances between the power circuits
Standards/regulations	DIN EN 50178
Rated insulation voltage	250 V AC
Rated surge voltage/insulation	Safe isolation, reinforced insulation 6 kV between input circuit and enabling current path (13/14) and enabling current path (23/24) and enabling current path (33/34) Basic insulation 4 kV between all current paths and housing
Degree of pollution	2
Overvoltage category	III
Vibration (operation)	10 Hz ...150 Hz, 2g

Classifications

eCl@ss

eCl@ss 5.1	27371901
eCl@ss 6.0	27371819
eCl@ss 8.0	27371819

ETIM

ETIM 5.0	EC001449
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Approvals

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Approvals

Approvals

UL Listed / cUL Listed / EAC / Functional Safety / cULus Listed

Ex Approvals

Approvals submitted

Approval details

UL Listed 

cUL Listed 

EAC

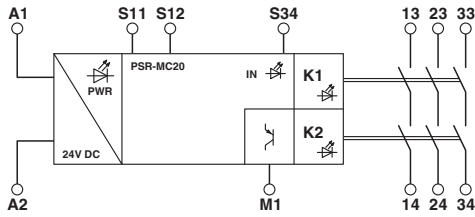
Functional Safety

cULus Listed 

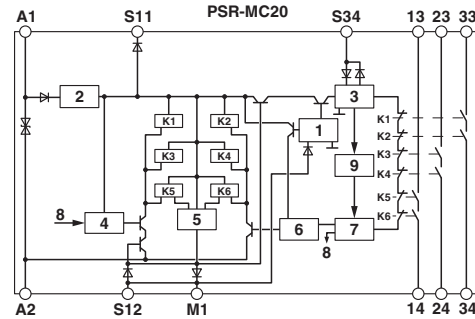
Drawings

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Block diagram



Block diagram



Key:

- 1 = Input circuit
- 2 = Voltage limitation
- 3 = Start circuit
- 4 = Control circuit channel 1
- 5 = Control circuit signal output
- 6 = Control circuit channel 2
- 7 = Start channel 1 and 2
- 8 = Channel 1
- 9 = Diagnostics
- K1, K2 ... K6 = Force-guided elementary relays

Circuit diagram

